IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of Atty Dkt. 4062-87
C# M#

CHOUDHARY et al. TC/A.U. 1626

Serial No. 10/665,356 Examiner: R. Waller

Filed: September 22, 2003 Date: February 25, 2005

Title: PROCESS FOR EPOXIDATION OF A LIQUID OLEFINIC ORGANIC COMPOUND USING A SUPPORTED NANO-GOLD CATALYST

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE/AMENDMENT/LETTER

This is a response/amendment/letter in the above-identified application and includes an attachment which is hereby incorporated by reference and the signature below serves as the signature to the attachment in the absence of any other signature thereon.

☐ **Correspondence Address Indication Form Attached.**

Fees are attached as calculated below:

Total effective claims after amendment **0** previously paid for **20** (at least 20) =	0 x $50.00	$0.00 (1202)/$0.00 (2202)	$
Independent claims after amendment **0** previously paid for **3** (at least 3) =	0 x $200.00	$0.00 (1201)/$0.00 (2201)	$
If proper multiple dependent claims now added for first time, (ignore improper); add		$360.00 (1051)/$180.00 (2051)	$
Petition is hereby made to extend the current due date so as to cover the filing date of this paper and attachment(s)		One Month Extension $120.00 (1251)/$60.00 (2251)	
		Two Month Extensions $450.00 (1252)/$225.00 (2252)	
		Three Month Extensions $1020.00 (1253/$510.00 (2253)	
		Four Month Extensions $1590.00 (1254/$795.00 (2254)	$ 1020.00
Terminal disclaimer enclosed, add		$130.00 (1814)/ $65.00 (2814)	$
☐ Applicant claims "small entity" status. ☐ Statement filed herewith			
Rule 56 Information Disclosure Statement Filing Fee		$180.00 (1806)	$
Assignment Recording Fee		$40.00 (8021)	$
Other:			$
		TOTAL FEE ENCLOSED	$ **1020.00**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140. A duplicate copy of this sheet is attached.

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NIXON & VANDERHYE P.C.
By Atty: Larry S. Nixon, Reg. No. 25,640

Signature: Larry S. Nixon

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

CHOUDHARY et al. Atty. Ref.: 4062-87; Confirmation No. 4922

Appl. No. 10/665,356 TC/A.U. 1626

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February 25, 2005

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE

In response to the Office Action dated 08/25/2004, reconsideration of this application is respectfully requested.

The rejection of claims 1-11 under 35 U.S.C. §103 as allegedly being made "obvious" based on Friedrich '161 is respectfully traversed.

In summarizing applicant's claimed invention, the Examiner has correctly noted that applicant's claimed invention requires, *inter alia*, the use of nano-size gold particles. In the Examiner's summary of the cited reference teaching, the Examiner (also correctly) does not assert that Friedrich '161 teaches or suggests the use of any nano-size gold particles.

Nevertheless, when the Examiner describes the acknowledged difference between the prior art and claim 1, the Examiner totally fails to even mention this distinction as just noted above. As will be detailed below, there are further material distinctions also to be noted.

There are substantial and material differences between the catalyst of Friedrich '161 and the catalyst of the claimed invention. The Friedrich '161 catalyst is a compound of a transition metal(9:58-59) such as Na_2WO_4, Na_2HVO_4, $Na_2H_2VO_4$ and $NaHMoO_4$. According to the abstract (lines 8-13), the catalyst is soluble in water. The catalyst compound is first dissolved in water and the solution obtained is then used for epoxidation. The Friedrich '161 catalyst is a homogeneous catalyst, which is soluble in the reaction mixture. As a result it requires separation from the distillation residue containing the catalyst compound and high boiling organic compounds by a complex process involving the use of a bed of fluidized inert solid particles and burning of the organic compounds form the residue with oxygen.

The applicant's invention as claimed in claim 1 uses a catalyst which differs substantially from the Friedrich '161 catalyst. The applicant's claimed invention is gold metal deposited on a metal oxide support. More particularly, the gold metal is deposited in the form of nanoparticles. It is not a compound of gold nor is it soluble in water. The applicant's claimed catalyst is heterogeneous and is a solid which is insoluble in the reaction mixture. This enables easy separation of the catalyst from the reaction mixture, for example by simple filtration. The filtered catalyst can be directly reused again in the process.

There is no teaching or guidance in Friedrich '161 towards use of nanoparticles as a catalyst which are also insoluble in water/reaction medium. It is accepted in the art relating to

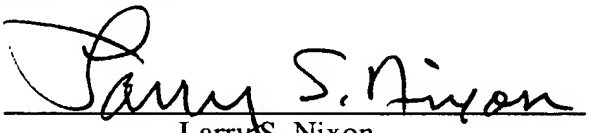
catalysts that what might appear to be minor differences can result in substantial difference in performance/selectivity/yield/activity in a particular process.

Given these fundamental deficiencies of Friedrich '161 with respect to even claim 1, it is not believed necessary at this time to further detail the additional deficiencies of this reference with respect to the dependent claims 2-11.

Accordingly, this entire application is now believed to be in allowable condition and a formal Notice to that effect is respectfully solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

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